DC
MAG910174

TRC

December 13, 2005

US Environmental Protection Agency
RPG-NOC Processing
Municipal Assistance Unit (CMU)
One Congress Street, Suite 1100
Boston, MA 02114-2023

Ref: NSTAR 345 kV System Reliability Project, NOI for Coverage under the Remediation General Permit (RPG) for Massachusetts

Dear Sir or Madam,

On behalf of Boston Edison Company d/b/a NSTAR Electric & Gas Corp., TRC is pleased to submit the attached National Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) for coverage under the Remediation General Permit (RGP) for the NSTAR 345 kV System Reliability Project. This application addresses dewatering requirements associated with installation of the buried cable beneath Route 128 at the Route 128/Route 138 interchange in Canton, MA. In addition to the application form, we have attached a site location map (Figure 1), a resource area map (Figure 2), the Rt 128 crossing design (Drawing S-4782-045A), agency correspondence and supporting groundwater analytical data.

The Route 128 crossing will be constructed using a jack and bore technique to avoid traffic disruptions along Rt 128. A bore pit will be installed on the south side of the highway and a receiving pit will be constructed on the north side of the highway within the boundaries of the interchange. Beginning in October 2005, treated dewatering effluent from construction activities has been discharged to an unnamed tributary of Ponkapoag Pond through an existing storm water collection and conveyance system serving the Rt 128/Rt 138 interchange. Discharge of dewatering effluent along the pipeline route was authorized under a NPDES exclusion letter (MA-05I-049).

With release of the Remediation General Permit (RGP), existing dischargers operating under an exclusion letter are required to seek coverage under the RGP or an individual NPDES discharge permit. The NSTAR 345 kV System Reliability Project Team has elected to seek coverage under the RGP.

The treatment systems at the Rt 128/Rt 138 interchange are designed to handle up to 10 gallons per minute (gpm) of dewatering effluent. Potential constituents of concern include total suspended solids, total petroleum hydrocarbons and metals, although elevated metals concentrations reported in the influent samples are believed to be adsorbed to sediments and not biologically available.

116 John Street, Boott Mills South • Lowell, Massachusetts 01852
Main: 978-970-5600 • Fax: 978-453-1995
www.trcsolutions.com

A schematic diagram of the treatment system is included in Section 2 of the NOI. Based on observed conditions at the bore pit, dewatering rates are expected to range from 2 gpm to 5 gpm, when required. We anticipate that the dewatering system will be required to operate periodically throughout the fall to facilitate installation of new buried cables. To date, monitoring results indicate that the treatment system is capable of efficiently managing dewatering effluent without adversely impacting wetlands or water bodies.

Correspondence from the US Fish and Wildlife Service and the Natural Heritage and Endangered Species Program (NHESP) is attached. The US Fish and Wildlife Service has concluded that there are no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the US Fish and Wildlife Service are known to occur in the project areas. Further, that additional consultation under Section 7 of the endangered Species Act is not required. The NHESP has determined that the route is near actual habitat of state protected wildlife (i.e., the Ponkapoag Pond Area of Critical Environmental Concern (ACEC)), although it is NHESP's opinion that the selected (i.e., preferred) route will not adversely affect rare wildlife habitat.

Your assistance in processing this application is greatly appreciated. If you have any questions or would like additional information please feel free to call at your earliest convenience. I may be reached at (978) 656-3570 or you may contact Ms. Dot McGlincy, TRC's Soils Manager, at (978) 656-3659.

Sincerely,

David Schafer, P.E.
TRC Environmental Corporation

cc: Beverly Schultz/NSTAR
Tom Baillie/Bond Brothers
Colin Duncan/TRC
Tricia Foster/TRC
Dot McGlincy/TRC

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General site information. Please provide the following information about the site:

a) Name of **facility/site**: NSTAR 345 KV Project		**Facility/site** address:	
Location of **facility/site**: longitude: 71.1031W latitude: 42.1416N	Facility SIC code(s): 4931	Street: Route 138	
b) Name of **facility/site owner**: NSTAR Elec. & Gas Corp.		Town: Stoughton	
Email address of owner: Beverly_Schultz@nstaronline.com		State: MA	Zip:	County: Norfolk
Telephone no.of facility/site **owner**: 781-441-3809				
Fax no. of facility/site **owner**: 781-441-3193		**Owner** is (check one): 1. Federal____ 2. State/Tribal_____ 3. Private_____ 4. other, if so, describe:		
Address of **owner** (if different from site): NSTAR Elec. & Gas Corp.				
Street: One NSTAR Way (NE 250)				
Town: Westwood	State: MA	Zip: 02090	County: Norfolk	
c) Legal name of **operator**: Bond Brothers	**Operator** telephone no: 617-387-3400			
	Operator fax no.: 617-389-1412	**Operator** email: tbaillie@bondbros.com		
Operator contact name and title: Mr. Tom Baillie, V.P.				
Address of **operator** (if different from owner):	Street: 145 Spring St			
Town: Everett	State: MA	Zip: 02149	County: Middlesex	

d) Check "yes" or "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes X No___, if "yes," number: MA-05I-049
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes___ No X, if "yes," date and tracking #:
3. Is the discharge a "new discharge"as defined by 40 CFR 122.2? Yes X No___
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes__ No X

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes___ No X If "yes," please list: 1. site identification # assigned by the state of NH or MA: 2. permit or license # assigned: 3. state agency contact information: name, location, and telephone number:	f) Is the site/facility covered by any other EPA permit, including: 1. multi-sector storm water general permit? Y___ N X, if Y, number: 2. phase I or II construction storm water general permit? Y X N___, if Y, number: MAR100000 3. individual NPDES permit? Y___ N X, if Y, number: 4. any other water quality related permit? Y___ N X, if Y, number:

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage: Discharge of dewatering effluent from jack and bore pits at Rt. 128 and Rt. 138 interchange

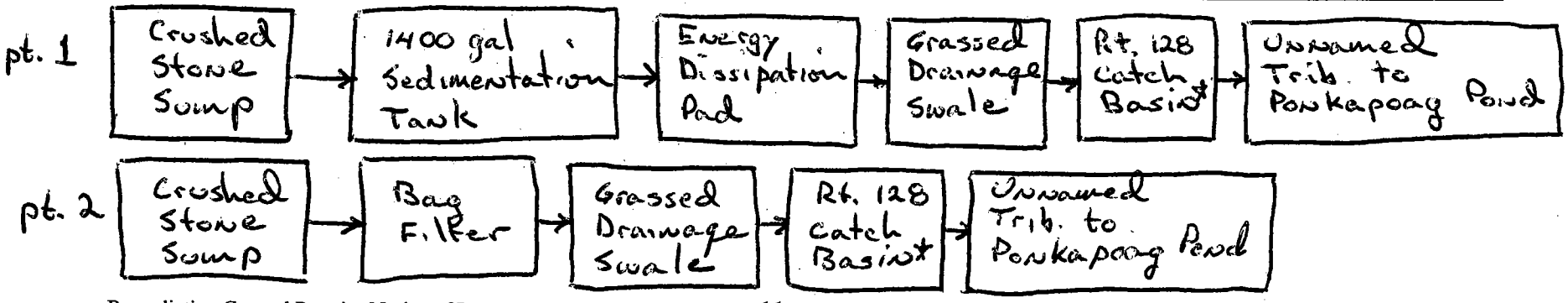
b) Provide the following information about each discharge:	1) Number of discharge points:	2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft3/s)? Max. flow 0.01 cfs (5 gpm) Average flow 0.005 cfs maximum flow a **design value**? Y___ N X For average flow, include the units and appropriate notation if this value is a design value or estimate if not available. Discharge flow rate from each pit ranges from 2 gpm to 5 gpm.

3) Latitude and longitude of each discharge within 100 feet: pt.1:long. 71.1168 lat. 42.2029; pt.2: long. 71.1169 lat. 42.2035; pt.3: long.____ lat.____;
pt.4:long.____ lat.____; pt.5: long.____ lat.____; pt.6:long.____ lat.____; pt.7: long.____ lat.____; pt.8:long.____ lat.____; etc.

4) If hydrostatic testing, total volume of the discharge (gals): NA	5) Is the discharge intermittent____ or seasonal____? Is discharge ongoing Yes X No____?

c) Expected dates of discharge (mm/dd/yy): start 10/1/05 end 12/31/05

d) Please attach a line drawing or flow schematic showing water flow through the facility including:
1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).



3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites X	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method (ug/l)	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		X	2	Grab	160.2	15,000	470,000	25.4	59,000	3.2
2. Total Residual Chlorine	X		1	"	330.1	50	ND		ND	
3. Total Petroleum Hydrocarbons		X	2	"	8100M	202	1,610	0.09	ND	
4. Cyanide	X		1	"	335.4	20	ND		ND	
5. Benzene	X		1	"	8260 B	5	ND		ND	
6. Toluene	X		1	"	"	5	ND		ND	
7. Ethylbenzene	X		1	"	"	5	ND		ND	
8. (m,p,o) Xylenes	X		1	"	"	5	ND		ND	
9. Total BTEX[4]	X		1	"	"	5	ND		ND	

[4] BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method (ug/l)	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide [5] (1,2- Dibromo-methane)	X		1	Grab	8260 B	1.0	ND		ND	
11. Methyl-tert-Butyl Ether (MtBE)	X		1	"	"	5.0	ND		ND	
12. tert-Butyl Alcohol (TBA)	NA		NA	-	-	-	NA		NA	
13. tert-Amyl Methyl Ether (TAME)	NA		NA	-	-	-	NA		NA	
14. Naphthalene	X		1	Grab	8270 C	0.781	ND		ND	
15. Carbon Tetra-chloride	X		1	"	8260B	5	ND		ND	
16. 1,4 Dichlorobenzene	X		1	"	"	5	ND		ND	
17. 1,2 Dichlorobenzene	X		1	"	"	5	ND		ND	
18. 1,3 Dichlorobenzene	X		1	"	"	5	ND		ND	
19. 1,1 Dichloroethane	X		1	"	"	5	ND		ND	
20. 1,2 Dichloroethane	X		1	"	"	5	ND		ND	
21. 1,1 Dichloroethylene	X		1	"	"	0.96	ND		ND	
22. cis-1,2 Dichloro-ethylene	X		1	"	"	5	ND		ND	
23. Dichloromethane (Methylene Chloride)	X		1	"	"	10	ND		ND	
24. Tetrachloroethylene	X		1	"	"	5	ND		ND	

[5] EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method (ug/l)	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	X		1	Grab	8260B	5	ND		ND	
26. 1,1,2 Trichloroethane	X		1	"	"	5	ND		ND	
27. Trichloroethylene	X		1	"	"	5	ND		ND	
28. Vinyl Chloride	X		1	"	"	2	ND		ND	
29. Acetone	X		1	"	"	50	ND		ND	
30. 1,4 Dioxane	NA		NA	–	–	–	NA		NA	
31. Total Phenols	X		1	"	8270C	0.26	ND		ND	
32. Pentachlorophenol	X		1	"	"	1.04	ND		ND	
33. Total Phthalates [6] (Phthalate esthers)	X		1	"	"	–	ND		ND	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	X		1	"	"	2.08	ND		ND	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	X		1	"	"	–	ND		ND	
a. Benzo(a) Anthracene	X		1	"	"	0.521	ND		ND	
b. Benzo(a) Pyrene	X		1	"	"	0.208	ND		ND	
c. Benzo(b)Fluoranthene	X		1	"	"	0.521	ND		ND	
d. Benzo(k) Fluoranthene	X		1	"	"	1.04	ND		ND	
e. Chrysene	X		1	"	"	0.521	ND		ND	

[6] The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method (ug/l)	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	X		1	Grab	8270C	0.521	ND		ND	
g. Indeno(1,2,3-cd) Pyrene	X		1	"	"	0.521	ND		ND	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	X		1	"	"	–	ND		ND	
h. Acenaphthene	X		1	"	"	0.521	ND		ND	
i. Acenaphthylene	X		1	"	"	0.260	ND		ND	
j. Anthracene	X		1	"	"	0.521	ND		ND	
k. Benzo(ghi) Perylene	X		1	"	"	1.04	ND		ND	
l. Fluoranthene	X		1	"	"	0.521	ND		ND	
m. Fluorene	X		1	"	"	0.521	ND		ND	
n. Naphthalene-	X		1	"	"	0.781	ND		ND	
o. Phenanthrene	X		1	"	"	0.521	ND		ND	
p. Pyrene	X		1	"	"	1.3	ND		ND	
37. Total Polychlorinated Biphenyls (PCBs)	X		1	"	8082	0.3	ND		ND	
38. Antimony		X	2	"	200.7	30	77	0.004	ND	
39. Arsenic		X	2	"	"	5	5	0.0003	ND	
40. Cadmium	X		2	"	213.2	0.2	ND		ND	
41. Chromium III	X			"	200.7/ 3500CR-D	10	ND		ND	
42. Chromium VI	X			"	200.7/ 3500CR-D	20	ND		ND	

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method (ug/l)	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		X	2	Grab	200.7	8	10	0.0005	ND	
44. Lead		X	2	"	200.9	1	14	0.0008	ND	
45. Mercury	X		1	"	245.1	1	ND		ND	
46. Nickel		X	2	"	200.7	10	22	0.001	ND	
47. Selenium	X		2	"	200.7	5	ND		ND	
48. Silver		X	2	"	272.2	0.4	15	0.0008	ND	
49. Zinc	X		1**	"	200.7	50	ND		ND	
50. Iron		X	2	"	200.7	50	4,900	0.27	179	0.009
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

Step 1: Do any of the metals in the influent have a **reasonable potential** to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y___ N___	If yes, which metals? Antimony, Copper, Silver, Lead, Iron *
Step 2: For any metals which have **reasonable potential** to exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: Antimony, Copper, Silver, Lead, Iron DF: 0-5	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y X N___ If "Yes," list which metals: Antimony, Copper Silver, Lead, Iron

* Elevated metals concentrations are believed to be adsorbed to suspended solids contained in the influent to treatment.

** Zinc was elevated in a sample collected from a galvanized steel piezometer. This sample was determined to be unrepresentative of groundwater conditions.

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system: See Section 2 (pp. 11 of NOI)						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank X	Air stripper	Oil/water separator	Equalization tanks	Bag filter X	GAC filter
	Chlorination	Dechlorination	Other (please describe): See Section 2 (pp. 11 of NOI)			
c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system: Average flow rate of discharge 2 gpm Maximum flow rate of treatment system 5 gpm Design flow rate of treatment system 10 gpm						
d) A description of chemical additives being used or planned to be used (attach MSDS sheets): NA						

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct____	Within facility__	Storm drain X	River/brook____	Wetlands X	Other (describe):
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters: Following treatment, dewatering effluent will discharge to a grassed drainage swale, enter a catch basin protected by a silt sac, then						
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.						
d) Provide the state water quality classification of the receiving water Class B						
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 0 cfs Please attach any calculation sheets used to support stream flow and dilution calculations.						
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes____ No X If yes, for which pollutant(s)? Is there a TMDL? Yes No____ If yes, for which pollutant(s)?						

discharges to an unnamed tributary to Ponkapoag Pond.

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes X No____
Has any consultation with the federal services been completed ? Yes X No___ or is consultation underway? Yes No____
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (~~check~~ one):
a "no jeopardy" opinion? _____or written concurrence____ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?
Yes_____ No X Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes X No_____

7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

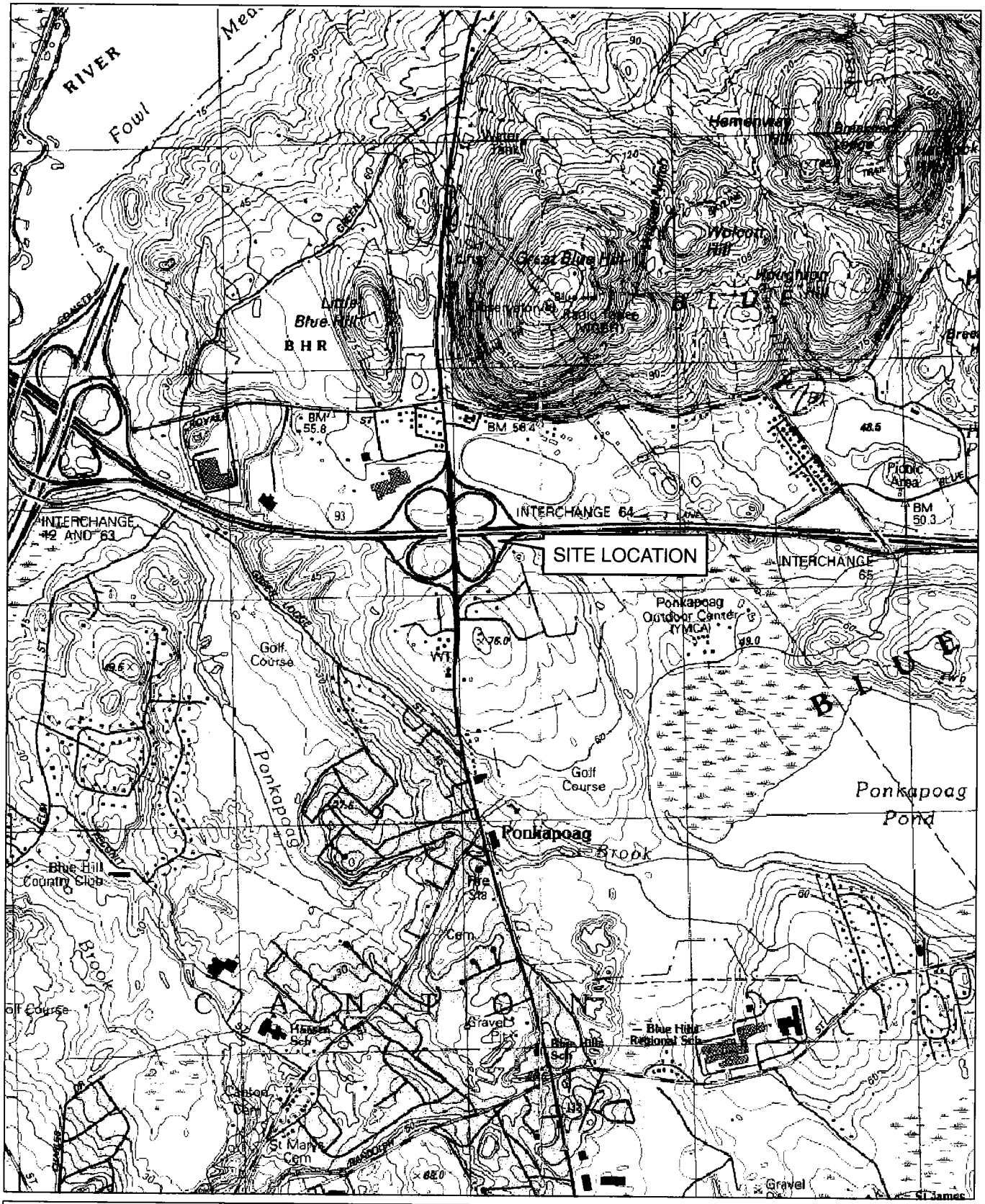
Facility/Site Name: NSTAR 345 KV System Reliability Project

Operator signature:

THOMAS C. BAILLIE

Title: VICE-PRESIDENT, CIVIL UTILITY DIVISION, BOND BROS., INC

Date: DEC. 7, 2005



Base map consists of USGS 'Norwood' and 'Blue Hills' topographic quadrangles.

0 1,000 2,000 Feet

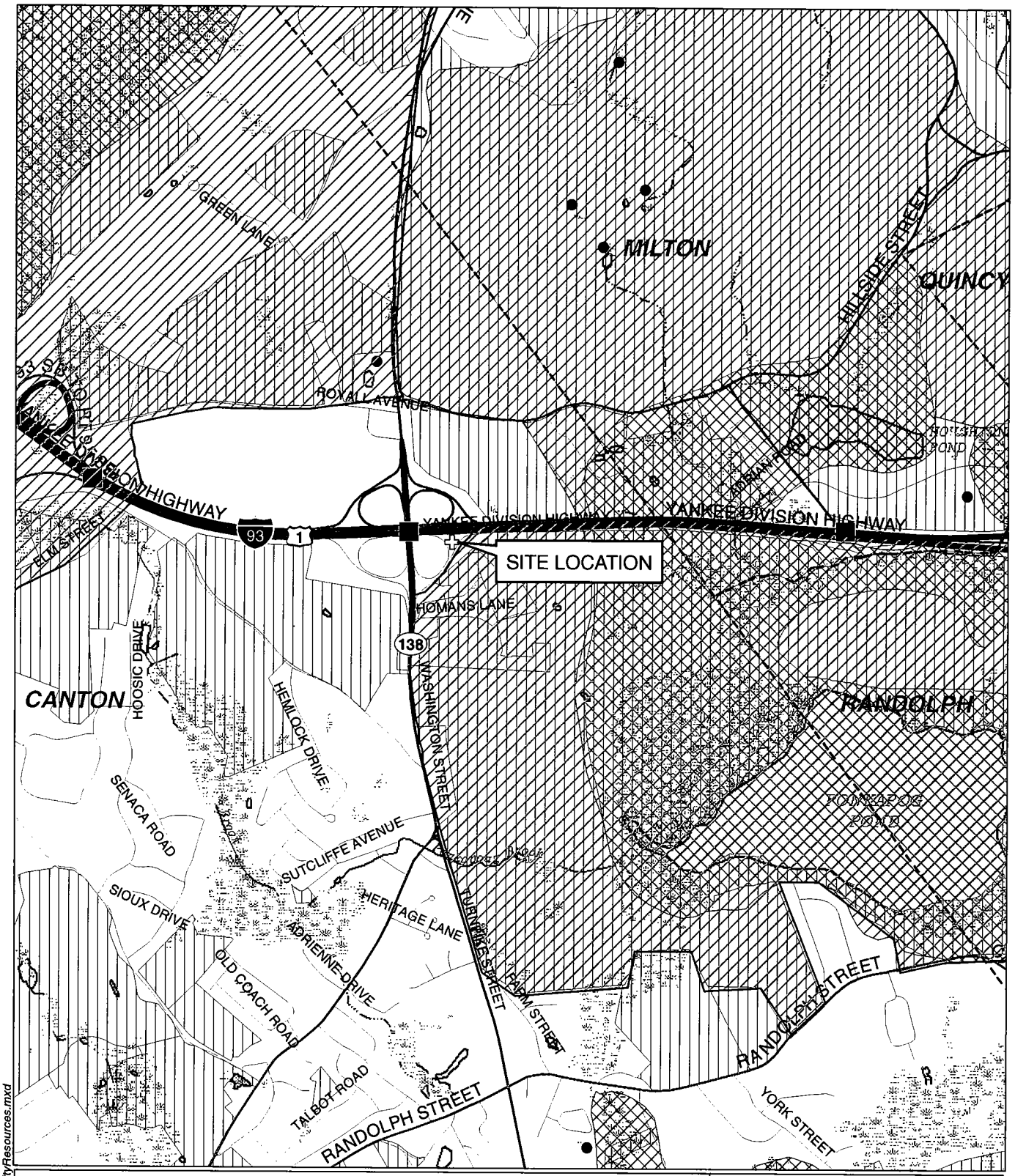
N

TRC

Boott Mills South
Foot of John Street
Lowell, MA 01852
978-970-5600

FIGURE 1
SITE LOCATION
345 kV TRANSMISSION RELIABILITY PROJECT
CANTON, MASSACHUSETTS

R:\Projects\GIS_2005\45848_NStar\FIG1_OUTFALL1.mxd



Roads: Limited Access, Multi-Lane, Major/Minor

Town Line, Perennial Str, Int Str, Aqueduct, Dam, Channel in Water

Wetland, Salt Wetland, Open Water, Reservoir

Protected Open Space, ACEC, Certified Vernal Pool 2003

Priority Habitat 2005, Rare Wildlife 2005

Marsh/Bog, Wooded Marsh, Salt Marsh, Tidal Flat, Cranberry Bog, Beach/Dune

TRC

Boott Mills South
116 John Street
Lowell, MA 01852
978-970-5600

FIGURE 2

RESOURCE AREA MAP

0 1,000 2,000
Feet

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LEGEND

- PROPOSED PPE TYPE CABLE
- PROPERTY LINE
- HIGHWAY BASELINE
- EDGE OF PAVEMENT
- CENTERLINE OF PAVEMENT
- PAVEMENT MARKINGS
- FENCE
- GUARD RAIL
- OVERHEAD WIRES
- DRAIN LINE
- SEWER LINE
- WATER LINE
- GAS LINE
- ELECTRICAL LINE
- TELEPHONE LINE
- CABLE TV LINE
- STEAM LINE
- UNKNOWN LINE
- CONCRETE BOUND
- IRON PIN
- UTILITY MANHOLE
- CATCH BASIN
- UTILITY POLE
- GUY ANCHOR
- ELECTRICAL SIGNAL BOX
- EMERGENCY FIRE BOX
- WATER GATE
- GAS GATE
- HYDRANT
- TRAFFIC SIGN
- TRAFFIC SIGNAL
- GATE POST / BOLLARD
- TREE
- SOIL PROBE
- PROPOSED BORING LOCATION

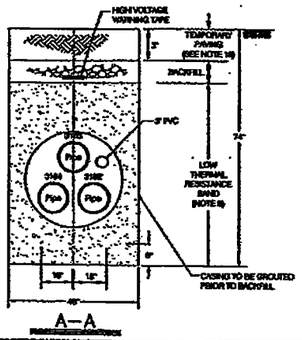
ENVIRONMENTAL CONDITIONS LEGEND

- SILT FENCE
- HAY BALES
- PRESUMPTIVE WETLAND BOUNDARY
- GUTTER BUDDY
- CATCH BASIN PROTECTION*

* SEE DRAWING H0789-DETAIL.DWG FOR DETAILS AND CATCH BASIN PROTECTION OPTIONS

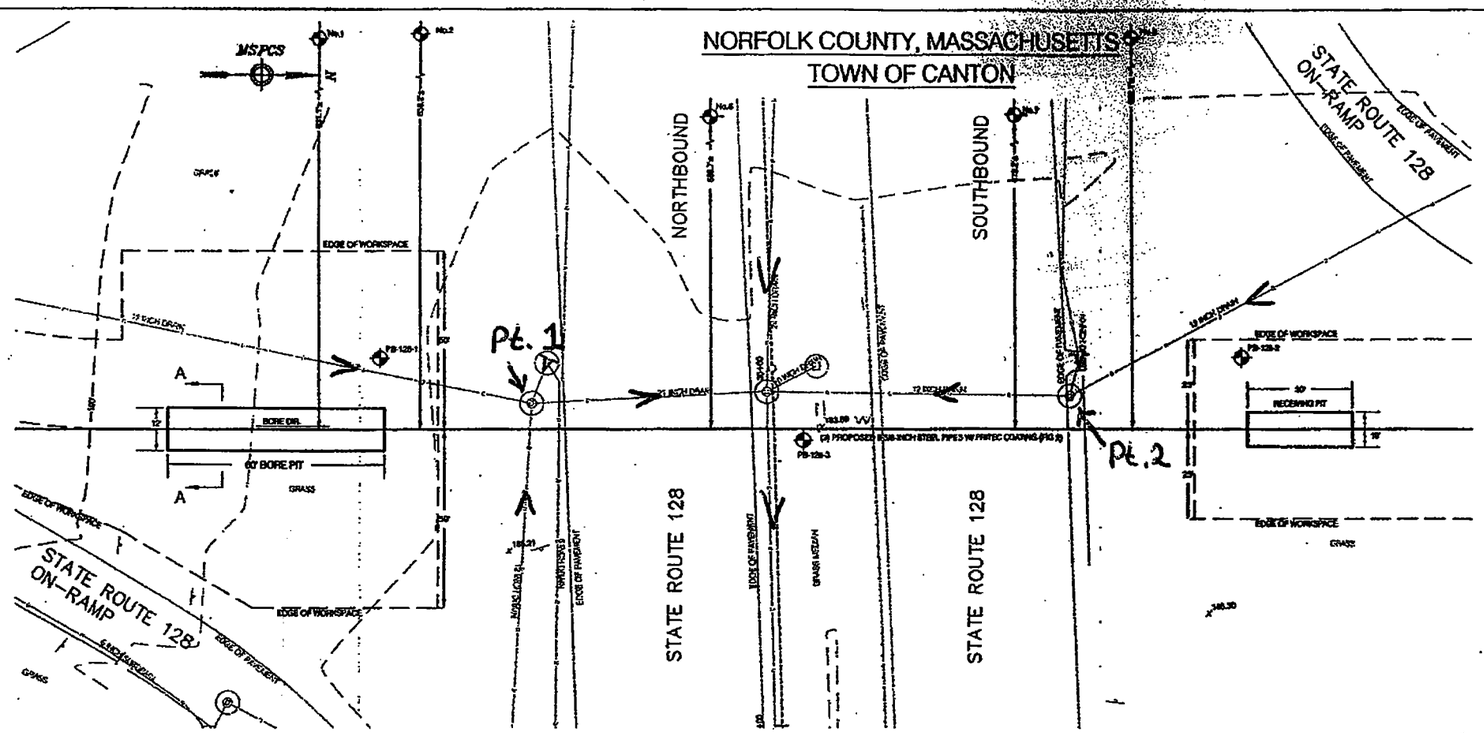
REFERENCE PLAN

1. PLAN ENTITLED "COMMONWEALTH OF MASSACHUSETTS PROPOSED BRIDGE, CANTON, SOUTHERN CIRCUMFERENCE HIGHWAY UNDER WASHINGTON STREET (ROUTE 138)", DATED: AUGUST 27, 1936, OFFICE OF THE DEPARTMENT OF PUBLIC WORKS, 180 NASHUA STREET, BOSTON, MASS, SHEET 1 OF 8 SHEET, BRIDGE NO. C-K-29



A–A

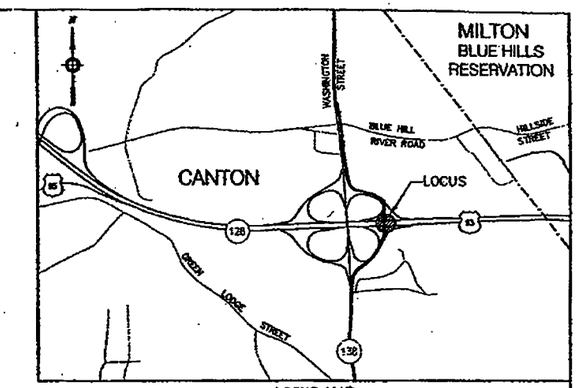
NORFOLK COUNTY, MASSACHUSETTS
TOWN OF CANTON



DETAIL 1

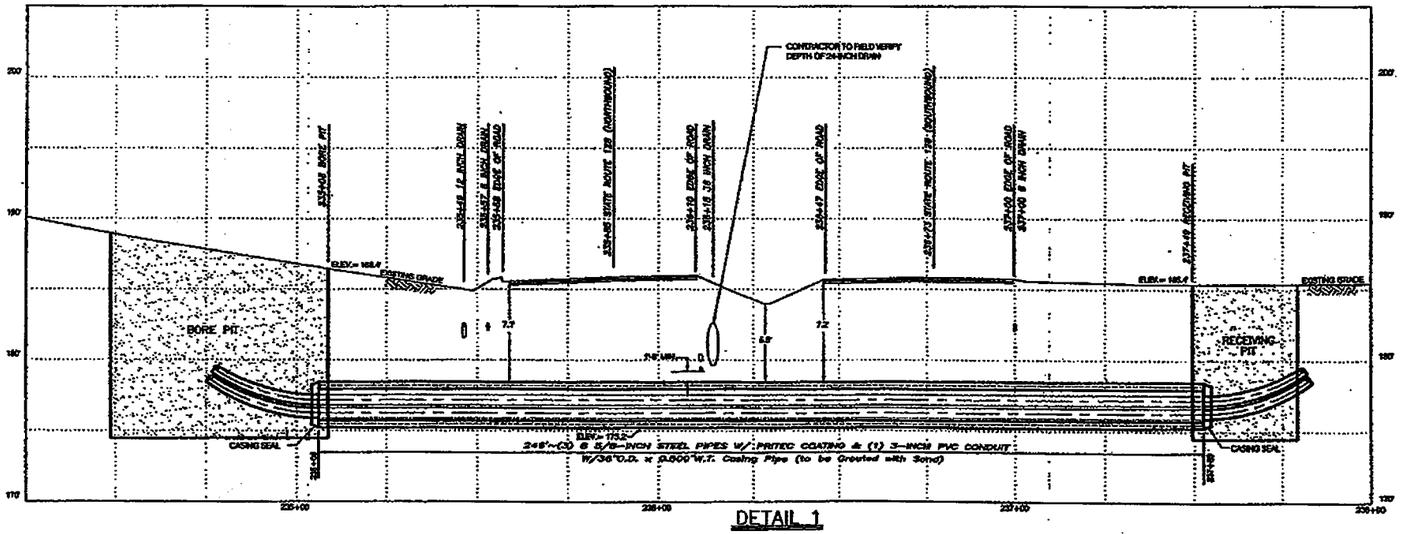
PLAN

SCALE: 1"=20'



LOCUS MAP

1"=1/4 Mile



DETAIL 1

PROFILE & DETAIL

SCALE: 1"=20' HOR.

SCALE: 1"=8' VERT.

BORING DATA

DATE: AUGUST 27, 2004
GRD. EL.: 169.0 ft.± (BCSD)
TOTAL DEPTH: 30 ft.
GROUNDWATER: 17 ft.±
BORING NO.: B128-1
BORING METHOD:

BLOW PER 6"	DEPTH (FeB)	BLOWS PER 6"	SAMPLE DESCRIPTION
193.0'	0'	11-13-19-23	Very dense, dry, fine to medium Sand, some coarse Sand; trace Angularity Silt boulders
191.0'	2'		
194.0'	0'		
193.0'	2'		
190.0'	3'	32-27-59-21	
189.0'	5'		
191.0'	5'	6-13-22-18	
189.0'	7'		
175.0'	7'	14-16-40-20	
177.0'	9'		
177.0'	9'	50/7"	Very dense, dry to wet, fine to coarse Sand, some medium Gravel, Cobbles, Boulders, Inorganic Silt, (FB)
175.0'	11'		
174.0'	12'		
174.0'	12'	44-50/2"	
170.0'	14'		
172.0'	14'	39-47-101-57	
170.0'	16'		
170.0'	16'	100/5"	
168.0'	18'		
168.0'	18'	100/5"	
166.0'	20'		
166.0'	20'	30-50/0"	
164.0'	22'		
164.0'	22'	51-100/4"	
162.0'	24'		
162.0'	24'	50/6	
160.0'	26'		
160.0'	26'	50/7"	
158.0'	28'		
158.0'	28'	50/2"	
156.0'	30'		

DATE: AUGUST 27, 2004
GRD. EL.: 165.0 ft.± (BCSD)
TOTAL DEPTH: 30 ft.
GROUNDWATER: No Water
BORING NO.: B128-2
BORING METHOD:

BLOW PER 6"	DEPTH (FeB)	BLOWS PER 6"	SAMPLE DESCRIPTION
163.0'	0'	7-11-23-31	Medium Dense, dry, fine to medium Sand, some coarse Sand, trace Inorganic Silt.
163.0'	2'		
163.0'	2'	7-11-23-31	
160.0'	5'		
160.0'	5'	11-23-32-48	
158.0'	7'		
158.0'	7'	7-11-21-31	
155.0'	10'		
155.0'	10'	13/6"	Very dense, dry to moist, fine to coarse Sand, some medium Gravel, Cobbles, Boulders, Inorganic Silt, (FB).
154.0'	10'-11'		
155.0'	10'	7-11-21-31	
153.0'	10'	31-50/6"	
153.0'	10'-12'		
151.0'	12'-14'	7-11-21-31	
151.0'	14'		
149.0'	16'	53-50/5"	
149.0'	16'-17'		

DATE: SEPTEMBER 20, 2004
GRD. EL.: 184.4 ft.± (BCSD)
TOTAL DEPTH: 22 ft.
GROUNDWATER: 19 ft.±
BORING NO.: B128-3
BORING METHOD:

BLOW PER 6"	DEPTH (FeB)	BLOWS PER 6"	SAMPLE DESCRIPTION
183.4'	0'	5-6-8-7	Dry, brown, loose, fine sand and peat.
182.4'	2'		
182.4'	2'		
179.4'	5'		
179.4'	5'	19-53-100/5"	Dry, tan, very dense, fine sand and gravel.
177.4'	7'		
177.4'	7'		
174.4'	10'		
174.4'	10'	23-59-100/5"	
172.4'	12'		
172.4'	12'		
169.4'	15'		
169.4'	15'	50-100/5"	
167.4'	17'		
167.4'	17'		
164.4'	20'		
164.4'	20'	50-100/3"	Wet, tan, very dense, fine to medium sand and gravel.
162.4'	22'		End boring 22' water 19' upon completion
162.4'	22'		
162.4'	22'		

NOTES

1. THE THREE PROPOSED 8 5/8-INCH STEEL PIPES W/ PRITEC COATING WILL BE INSERTED INTO A 36-INCH STEEL CASING PIPE TO BE INSERTED VIA BORE. THE CASING PIPE WILL BE INSTALLED WITH A MINIMUM OF 18-INCHES VERTICAL AND 18-INCHES HORIZONTAL CLEARANCE.

2. BORE DETAIL SHOWN HEREON IS A RESULT OF AN ON-THE-GROUND FIELD SURVEY PERFORMED BY COLER & COLANTONIO, INC. WINTER 2004.

3. LOCATION OF ANY IDENTIFIED UNDERGROUND UTILITIES IS APPROXIMATE ONLY, AND IS NOT WARRANTED TO BE CORRECT. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR FOR SERVICE, SIZE, INVERT ELEVATIONS, LOCATION, ETC. CONTRACTOR MUST NOTIFY DIG-SAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION.

4. SURVEY WAS CONDUCTED IN MASSACHUSETTS MAINLAND ZONE 2003. NAD83 HORIZONTAL COORDINATE SYSTEM. ELEVATIONS ARE BASED ON BOSTON CITY DATUM AND REFERENCED TO TEMPORARY BENCH MARKS AS SHOWN ON THE PLAN.

5. PROPERTY LINES SHOWN HEREON ARE BASED ON TAX MAP LOCATION AND DO NOT REPRESENT A PROPERTY LINE RETRACEMENT SURVEY EFFORT.

6. THE LOCUS LIES IN FIRM ZONE "X", DESCRIBED ON COMMUNITY PANEL NUMBER 2502C0 0020, EFFECTIVE DATE JUNE 4, 1984, PREPARED BY F.E.M.A.

7. BORING DATA WAS OBTAINED BY EFFORTS CONDUCTED BY COLER & COLANTONIO, INC. IN SEPTEMBER, 2004

8. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH PART VI OF THE 1999 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) REVISION 3 AND AS AMENDED.

9. ALL VEHICLES ARE TO BE HIGHLY VISIBLE USING ROTATING BEACONS AND BE MARKED BY USE OF TRAFFIC CONES.

10. NSTAR ELECTRIC SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY OBSTRUCTION OF ACCESS.

11. PURPOSE OF THIS PLAN IS TO IDENTIFY THE METHOD OF INSTALLATION FOR THE CULVERT CROSSING.

REFERENCE DRAWINGS

DRAWING NO.	TITLE	DRAWING NO.	TITLE
S-0782-045	ALIGNMENT SHEET		
S-0782-172	TRENCH DETAIL		
S-0782-173	TRENCH DETAIL		
S-0782-176	TRENCH DETAIL		

REVISIONS

NO.	DATE	REMARKS	REV. CAC	CKD. JSO	COR. NS	APP. PFB
0	11/04	ISSUED FOR BID				

Design/Engineering: POWER ENGINEERS; COLER & COLANTONIO

Owner/Operator: NSTAR ELECTRIC

SPECIFICATIONS

NSTAR ELECTRIC COMPANY
PROPOSED 345kV PIPE TYPE CABLE ROUTE 128 CROSSING DESIGN
CANTON, NORFOLK COUNTY, MASSACHUSETTS

File No.: S-4782-045A.dwg

APPROVED BY

DATE: TURNER MANAGER

NSTAR ELECTRIC COMPANY

S-4782-045A

GeoLabs, Inc.

Date: *10-Oct-05*

CLIENT: TRC Environmental
Project: 45848 Rt. 128 Canton, MA

Lab Order: 0510060

Lab ID: 0510060-001
Client Sample PB128-1

Collection 10/6/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL SUSPENDED SOLIDS		E160.2				Analyst: AMS
Total Suspended Solids	59.0	4.00		mg/L	1	10/6/2005
TOTAL PETROLEUM HYDROCARBONS		8100M		(8100M)		Analyst: KH
Total Petroleum Hydrocarbons	1.61	0.202		mg/L	1	10/6/2005
Surr: o-terphenyl	111	40-140		%REC	1	10/6/2005
POLYCHLORINATED BIPHENYLS		SW8082		(SW3510B)		Analyst: GP
Aroclor 1016/1242	ND	0.300		µg/L	1	10/6/2005
Aroclor 1221	ND	0.300		µg/L	1	10/6/2005
Aroclor 1232	ND	0.300		µg/L	1	10/6/2005
Aroclor 1248	ND	0.300		µg/L	1	10/6/2005
Aroclor 1254	ND	0.300		µg/L	1	10/6/2005
Aroclor 1260	ND	0.300		µg/L	1	10/6/2005
Aroclor 1262	ND	0.300		µg/L	1	10/6/2005
Aroclor 1268	ND	0.300		µg/L	1	10/6/2005
Surr: Decachlorobiphenyl Sig 1	82.0	30-150		%REC	1	10/6/2005
Surr: Decachlorobiphenyl Sig 2	99.0	30-150		%REC	1	10/6/2005
Surr: Tetrachloro-m-xylene Sig 1	76.0	30-150		%REC	1	10/6/2005
Surr: Tetrachloro-m-xylene Sig 2	76.0	30-150		%REC	1	10/6/2005
ICP METALS		E200.7		(SW3010A)		Analyst: ZYZ
Antimony	0.0770	0.0300	*	mg/L	1	10/6/2005
Arsenic	ND	0.0500		mg/L	1	10/6/2005
Cadmium	ND	0.00500		mg/L	1	10/6/2005
Chromium	ND	0.0600		mg/L	1	10/6/2005
Copper	0.0100	0.00800		mg/L	1	10/6/2005
Iron	0.179	0.0600		mg/L	1	10/6/2005
Lead	ND	0.0150		mg/L	1	10/6/2005
Nickel	0.0220	0.0100		mg/L	1	10/6/2005
Selenium	ND	0.0500		mg/L	1	10/6/2005
Zinc	26.7	1.00	*	mg/L	10	10/6/2005
SILVER		200.7		(SW3010A)		Analyst: ZYZ
Silver	0.0150	0.00700		mg/L	1	10/6/2005
TOTAL MERCURY		E245.1		(SW7470A/E245.1)		Analyst: EN
Mercury	ND	0.0010		mg/L	1	10/6/2005

Qualifiers:
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- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

GeoLabs, Inc.

Date: *10-Oct-05*

CLIENT: TRC Environmental
Project: 45848 Rt. 128 Canton, MA

Lab Order: 0510060

SEMIVOLATILE ORGANICS SW8270C (SW3510) Analyst: ZYZ

1,2,4-Trichlorobenzene	ND	0.781	µg/L	1	10/7/2005
1,2-Dichlorobenzene	ND	1.04	µg/L	1	10/7/2005
1,2-Dinitrobenzene	ND	5.21	µg/L	1	10/7/2005
1,3-Dichlorobenzene	ND	1.04	µg/L	1	10/7/2005
1,3-Dinitrobenzene	ND	0.781	µg/L	1	10/7/2005
1,4-Dichlorobenzene	ND	1.04	µg/L	1	10/7/2005
1,4-Dinitrobenzene	ND	5.21	µg/L	1	10/7/2005
2,3,4,6-Tetrachlorophenol	ND	1.04	µg/L	1	10/7/2005
2,4,5-Trichlorophenol	ND	0.781	µg/L	1	10/7/2005
2,4,6-Trichlorophenol	ND	0.521	µg/L	1	10/7/2005
2,4-Dichlorophenol	ND	0.521	µg/L	1	10/7/2005
2,4-Dimethylphenol	ND	3.91	µg/L	1	10/7/2005
2,4-Dinitrophenol	ND	0.260	µg/L	1	10/7/2005
2,4-Dinitrotoluene	ND	0.521	µg/L	1	10/7/2005
2,6-Dinitrotoluene	ND	0.260	µg/L	1	10/7/2005
2-Chloronaphthalene	ND	0.521	µg/L	1	10/7/2005
2-Chlorophenol	ND	0.521	µg/L	1	10/7/2005
2-Methylnaphthalene	ND	0.781	µg/L	1	10/7/2005
2-Methylphenol	ND	1.04	µg/L	1	10/7/2005
2-Nitroaniline	ND	0.781	µg/L	1	10/7/2005
2-Nitrophenol	ND	0.521	µg/L	1	10/7/2005
3,3'-Dichlorobenzidine	ND	2.60	µg/L	1	10/7/2005
3-Methylphenol/4-methylphenol	ND	1.56	µg/L	1	10/7/2005
3-Nitroaniline	ND	1.56	µg/L	1	10/7/2005
4,6-Dinitro-2-methylphenol	ND	1.04	µg/L	1	10/7/2005
4-Bromophenyl phenyl ether	ND	0.781	µg/L	1	10/7/2005
4-Chloro-3-methylphenol	ND	0.521	µg/L	1	10/7/2005
4-Chloroaniline	ND	2.60	µg/L	1	10/7/2005
4-Chlorophenyl phenyl ether	ND	0.521	µg/L	1	10/7/2005
4-Nitroaniline	ND	1.04	µg/L	1	10/7/2005
4-Nitrophenol	ND	0.521	µg/L	1	10/7/2005
Acenaphthene	ND	0.521	µg/L	1	10/7/2005
Acenaphthylene	ND	0.260	µg/L	1	10/7/2005
Acetophenone	ND	0.781	µg/L	1	10/7/2005
Aniline	ND	2.34	µg/L	1	10/7/2005
Anthracene	ND	0.521	µg/L	1	10/7/2005
Azobenzene	ND	5.21	µg/L	1	10/7/2005
Benz(a)anthracene	ND	0.521	µg/L	1	10/7/2005
Benzo(a)pyrene	ND	0.208	µg/L	1	10/7/2005
Benzo(b)fluoranthene	ND	0.521	µg/L	1	10/7/2005
Benzo(g,h,i)perylene	ND	1.04	µg/L	1	10/7/2005
Benzo(k)fluoranthene	ND	1.04	µg/L	1	10/7/2005

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GeoLabs, Inc.

Date: *10-Oct-05*

CLIENT: TRC Environmental
Project: 45848 Rt. 128 Canton, MA

Lab Order: 0510060

SEMIVOLATILE ORGANICS		SW8270C		(SW3510)		Analyst: ZYZ
Benzyl alcohol	ND	1.04		µg/L	1	10/7/2005
Bis(2-chloroethoxy)methane	ND	0.521		µg/L	1	10/7/2005
Bis(2-chloroethyl)ether	ND	0.521		µg/L	1	10/7/2005
Bis(2-chloroisopropyl)ether	ND	0.781		µg/L	1	10/7/2005
Bis(2-ethylhexyl)phthalate	ND	2.08		µg/L	1	10/7/2005
Butyl benzyl phthalate	ND	1.30		µg/L	1	10/7/2005
Carbazole	ND	0.781		µg/L	1	10/7/2005
Chrysene	ND	0.521		µg/L	1	10/7/2005
Dibenz(a,h)anthracene	ND	0.521		µg/L	1	10/7/2005
Dibenzofuran	ND	0.521		µg/L	1	10/7/2005
Diethyl phthalate	ND	1.30		µg/L	1	10/7/2005
Dimethyl phthalate	ND	1.82		µg/L	1	10/7/2005
Di-n-butyl phthalate	ND	0.781		µg/L	1	10/7/2005
Di-n-octyl phthalate	ND	2.08		µg/L	1	10/7/2005
Fluoranthene	ND	0.521		µg/L	1	10/7/2005
Fluorene	ND	0.521		µg/L	1	10/7/2005
Hexachlorobenzene	ND	1.04		µg/L	1	10/7/2005
Hexachlorobutadiene	ND	0.521		µg/L	1	10/7/2005
Hexachlorocyclopentadiene	ND	10.4		µg/L	1	10/7/2005
Hexachloroethane	ND	2.08		µg/L	1	10/7/2005
Indeno(1,2,3-cd)pyrene	ND	0.521		µg/L	1	10/7/2005
Isophorone	ND	0.521		µg/L	1	10/7/2005
Naphthalene	ND	0.781		µg/L	1	10/7/2005
Nitrobenzene	ND	0.781		µg/L	1	10/7/2005
N-Nitrosodimethylamine	ND	1.04		µg/L	1	10/7/2005
N-Nitrosodi-n-propylamine	ND	1.04		µg/L	1	10/7/2005
N-Nitrosodiphenylamine	ND	5.21		µg/L	1	10/7/2005
Pentachlorophenol	ND	1.04		µg/L	1	10/7/2005
Phenanthrene	ND	0.521		µg/L	1	10/7/2005
Phenol	ND	0.260		µg/L	1	10/7/2005
Pyrene	ND	1.30		µg/L	1	10/7/2005
Pyridine	ND	1.30		µg/L	1	10/7/2005
Surr: 2,4,6-Tribromophenol	46.0	15-150		%REC	1	10/7/2005
Surr: 2-Fluorobiphenyl	142	30-130	S	%REC	1	10/7/2005
Surr: 2-Fluorophenol	37.3	15-110		%REC	1	10/7/2005
Surr: Nitrobenzene-d5	126	30-130		%REC	1	10/7/2005
Surr: Phenol-d6	27.7	15-110		%REC	1	10/7/2005
Surr: Terphenyl-d14	166	30-130	S	%REC	1	10/7/2005

VOLATILE ORGANIC COMPOUNDS BY GC/MS		SW8260B				Analyst: MR
1,1,1,2-Tetrachloroethane	ND	2.00		µg/L	1	10/6/2005 3:41:00 PM
1,1,1-Trichloroethane	ND	5.00		µg/L	1	10/6/2005 3:41:00 PM
1,1,2,2-Tetrachloroethane	ND	0.610		µg/L	1	10/6/2005 3:41:00 PM
1,1,2-Trichloroethane	ND	5.00		µg/L	1	10/6/2005 3:41:00 PM

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

GeoLabs, Inc.

Date: *10-Oct-05*

CLIENT: TRC Environmental
Project: 45848 Rt. 128 Canton, MA

Lab Order: 0510060

VOLATILE ORGANIC COMPOUNDS BY GC/MS SW8260B Analyst: MR

1,1-Dichloroethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,1-Dichloroethene	ND	0.960	µg/L	1	10/6/2005 3:41:00 PM
1,1-Dichloropropane	ND	0.400	µg/L	1	10/6/2005 3:41:00 PM
1,2,3-Trichlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2,3-Trichloropropane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2,4-Trichlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2,4-Trimethylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2-Dibromo-3-chloropropane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2-Dibromoethane	ND	1.00	µg/L	1	10/6/2005 3:41:00 PM
1,2-Dichlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2-Dichloroethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,2-Dichloropropane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,3,5-Trimethylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,3-Dichlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,3-Dichloropropane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
1,4-Dichlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
2,2-Dichloropropane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
2-Butanone	ND	10.0	µg/L	1	10/6/2005 3:41:00 PM
2-Chloroethyl vinyl ether	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
2-Chlorotoluene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
2-Hexanone	ND	10.0	µg/L	1	10/6/2005 3:41:00 PM
4-Chlorotoluene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
4-Methyl-2-pentanone	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Acetone	ND	50.0	µg/L	1	10/6/2005 3:41:00 PM
Acrylonitrile	ND	50.0	µg/L	1	10/6/2005 3:41:00 PM
Benzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Bromobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Bromochloromethane	ND	2.00	µg/L	1	10/6/2005 3:41:00 PM
Bromodichloromethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Bromoform	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Bromomethane	ND	2.00	µg/L	1	10/6/2005 3:41:00 PM
Carbon tetrachloride	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Chlorobenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Chloroethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Chloroform	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Chloromethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
cis-1,2-Dichloroethene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
cis-1,3-Dichloropropene	ND	0.650	µg/L	1	10/6/2005 3:41:00 PM
Dibromochloromethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Dibromomethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Dichlorodifluoromethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Ethylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Hexachlorobutadiene	ND	0.500	µg/L	1	10/6/2005 3:41:00 PM
Isopropylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM

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GeoLabs, Inc.

Date: *10-Oct-05*

CLIENT: TRC Environmental
Project: 45848 Rt. 128 Canton, MA

Lab Order: 0510060

VOLATILE ORGANIC COMPOUNDS BY GC/MS		SW8260B			Analyst: MR
Methyl tert-butyl ether	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Methylene chloride	ND	10.0	µg/L	1	10/6/2005 3:41:00 PM
Naphthalene	ND	20.0	µg/L	1	10/6/2005 3:41:00 PM
n-Butylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
n-Propylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
p-Isopropyltoluene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
sec-Butylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Styrene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
tert-Butylbenzene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Tetrachloroethene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Toluene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
trans-1,2-Dichloroethene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
trans-1,3-Dichloropropene	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Trichloroethene	ND	0.950	µg/L	1	10/6/2005 3:41:00 PM
Trichlorofluoromethane	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Vinyl chloride	ND	5.00	µg/L	1	10/6/2005 3:41:00 PM
Xylenes, Total	ND	2.00	µg/L	1	10/6/2005 3:41:00 PM
Surr: 1,2-Dichloroethane-d4	88.6	5.00	µg/L	1	10/6/2005 3:41:00 PM
Surr: 4-Bromofluorobenzene	99.1	70-130	%REC	1	10/6/2005 3:41:00 PM
Surr: Dibromofluoromethane	94.4	70-130	%REC	1	10/6/2005 3:41:00 PM
Surr: Toluene-d8	102	70-130	%REC	1	10/6/2005 3:41:00 PM
		70-130	%REC	1	10/6/2005 3:41:00 PM

CYANIDE, TOTAL		E335.4			Analyst: RP
Cyanide, Total	ND	0.020	mg/L	1	10/7/2005

HEXAVALENT CHROMIUM		M3500-Cr D			Analyst: TCW
Chromium, Hexavalent	ND	0.321	mg/L	1	10/6/2005

TOTAL RESIDUAL CHLORINE		EPA 330.5			Analyst: RP
Total Residual Chlorine	0.930	0.162	mg/L	1	10/5/2005

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

CHAIN OF CUSTODY

GeoLabs CHAIN NUMBER:

CHECKED ITEMS MUST BE FILLED IN

WITH HOUR RUSHES ONLY WITH APPROVAL OF DEVIATION OR LAB DIRECTOR

GeoLabs, Inc.
Environmental Laboratories
45 Johnson Lane
Braintree, MA 02184
Office: 781-848-7844
Fax: 781-848-7811

Turnaround Time
RUSH 24 48 hr STANDARD
RUSH APPROVED BY

Page ___ of ___

SPECIAL INSTRUCTIONS

Note: JOBS WITH INCOMPLETELY FILLED OUT CHAINS WILL NOT BE RUN. CHAIN WILL BE RETURNED TO CLIENT FOR COMPLETION

TYPE OF CLIENT: BUS ___ LAB ___ HOMEOWNER ___

NOTE: HOMEOWNERS, LAW FIRMS MUST PAY WHEN DROPPING OFF SAMPLES

Client: X TRC
Address: X 116 John Street NO P.O. BOXES
Boott Mills So., Lowell MA
Phone: X 978-970-5600
Fax:
Contact: X Dave Schafer
E-mail: dschafer@trcsolutions.com

Project Number: X 45848
Project Location: X Rt. 128 Canton, MA
Purchase Order #:
Collected By: Colin P Duncan

CHANGES REQUESTED? Y N
BY DATE
Metals - Sb, As, Cd, Cu, Pb
Hg, Ni, Se, Ag, Zn, Fe, Cr

Received on Ice? Y

ANALYSES REQUESTED

SAMPLE ID	COLLECTION DATE	COLLECTION TIME	COLLECTION SAMPLED BY	SAMPLE LOCATION	CONTAINER TYPE	CONTAINER QUANT	MATRIX	COMP	GRAB	PRES	GEOLABS SAMPLE NUMBER	TPH / Volatiles	SVOC	PCB	CN	TSS	Metals	Cr6, Cr3	TRC	TEMPERATURE	LAB pH
PB128-1	10-6-05	830	CPD	Rt128, Canton, MA		GW			X		10060-001	2/2	2	2	1	1	1	1	1	[illegible]	

Verbal results given to by (date/initial)

MATRIX CODES:
GW = Ground Water
WW = Wastewater
DW = Drinking Water
SL = Sludge
S = Soil A = Air
O = Oil OT = Other

CONTAINER CODES:
A = Amber B = Bag
G = Glass P = Plastic
S = Summa Canister
O = Other V = VOA

PRESERVATIVE CODES:
1 = HCl 5 = NaOH
2 = HNO_3 6 = MeOH
3 = H_2SO_4 7 = ICE
4 = $Na_2S_2O_3$

Terms: Payment due within 30 days unless other arrangements are made.
Past due balances subject to interest and collection costs.

Relinquished By: *Date/Time* 10/6/05
PRINT: Colin P Duncan 0950
Relinquished By: Colin P Duncan
Relinquished By:

Received By: *Date/Time:*
Received By:
Received By GeoLabs: 10/6/05 0950

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: TRC Environmental Corporation

Address: Boott Mills South
116 John Street
Lowell, MA 01852

Attn: Mr Colin Duncan

Project Number: 45848-0000-00780

Site: NSTAR 345 KV PROJECT

Laboratory Job Number: L0512140

Date Received: 12-OCT-2005

Date Reported: 19-OCT-2005

Delivery Method: Alpha

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0512140-01	SP222-A	CANTON, MA

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: Douglas Sheehy
Technical Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0512140-01
SP222-A
Sample Matrix: WATER

Date Collected: 11-OCT-2005 12:50
Date Received : 12-OCT-2005
Date Reported : 19-OCT-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,6-Plastic

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	470	mg/l	15.	4	160.2		1013 16:10	DT
Chlorine, Total Residual	ND	mg/l	0.05	4	330.1		1012 21:55	DP
Chromium, Hexavalent	ND	mg/l	0.02	30	3500CR-D	1012 22:00	1012 22:00	JT
Total Metals				19	200.7			
Antimony, Total	ND	mg/l	0.005	3	200.9	1017 20:30	1018 17:23	PY
Arsenic, Total	0.005	mg/l	0.005	19	200.7	1017 20:30	1018 10:35	RW
Cadmium, Total	ND	mg/l	0.0002	4	213.2	1017 20:30	1018 20:17	PY
Chromium, Total	ND	mg/l	0.01	19	200.7	1017 20:30	1018 10:35	RW
Copper, Total	ND	mg/l	0.01	19	200.7	1017 20:30	1018 10:35	RW
Iron, Total	4.9	mg/l	0.05	19	200.7	1017 20:30	1018 10:35	RW
Lead, Total	0.014	mg/l	0.001	3	200.9	1017 20:30	1019 00:43	PY
Nickel, Total	ND	mg/l	0.025	19	200.7	1017 20:30	1018 10:35	RW
Selenium, Total	ND	mg/l	0.005	19	200.7	1017 20:30	1018 10:35	RW
Silver, Total	ND	mg/l	0.0004	4	272.2	1017 20:30	1019 12:16	PY
Zinc, Total	ND	mg/l	0.05	19	200.7	1017 20:30	1018 10:35	RW

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0512140

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01 (L0512133-01, WG217225-2)					
Solids, Total Suspended	450	490	mg/l	9	20
Chlorine, Total Residual for sample(s) 01 (L0512080-01, WG217144-3)					
Chlorine, Total Residual	1.6	1.6	mg/l	0	
Tph, Sgt-Hem for sample(s) 01 (L0512140-01, WG217526-4)					
TPH	ND	ND	mg/l	NC	34
Chromium, Hexavalent for sample(s) 01 (L0512184-01, WG217151-4)					
Chromium, Hexavalent	ND	ND	mg/l	NC	
Total Metals for sample(s) 01 (L0512184-01, WG217584-1)					
Antimony, Total	ND	ND	mg/l	NC	
Arsenic, Total	ND	ND	mg/l	NC	
Cadmium, Total	ND	ND	mg/l	NC	
Chromium, Total	ND	ND	mg/l	NC	
Copper, Total	ND	ND	mg/l	NC	
Iron, Total	0.72	0.72	mg/l	0	
Nickel, Total	ND	ND	mg/l	NC	
Selenium, Total	ND	ND	mg/l	NC	
Silver, Total	ND	ND	mg/l	NC	
Zinc, Total	ND	ND	mg/l	NC	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0512140

Parameter	% Recovery	QC Criteria
Chlorine, Total Residual LCS for sample(s) 01 (WG217144-2)		
Chlorine, Total Residual	100	
Tph, Sgt-hem LCS for sample(s) 01 (WG217526-2)		
TPH	85	64-132
Chromium, Hexavalent LCS for sample(s) 01 (WG217151-2)		
Chromium, Hexavalent	100	
Total Metals LCS for sample(s) 01 (WG217584-4)		
Antimony, Total	93	
Arsenic, Total	111	
Cadmium, Total	110	
Chromium, Total	100	
Copper, Total	96	
Iron, Total	97	
Lead, Total	104	
Nickel, Total	100	
Selenium, Total	114	
Silver, Total	86	
Zinc, Total	96	
Tph, Sgt-Hem SPIKE for sample(s) 01 (L0512267-01, WG217526-3)		
TPH	82	64-132
Chromium, Hexavalent SPIKE for sample(s) 01 (L0512140-01, WG217151-3)		
Chromium, Hexavalent	111	
Total Metals SPIKE for sample(s) 01 (L0512184-01, WG217584-2)		
Antimony, Total	87	
Arsenic, Total	107	
Cadmium, Total	110	
Chromium, Total	95	
Copper, Total	92	
Iron, Total	98	
Lead, Total	100	
Nickel, Total	95	
Selenium, Total	110	
Silver, Total	84	
Zinc, Total	100	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0512140

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01 (WG217225-1)								
Solids, Total Suspended	ND	mg/l	5.0	4	160.2		1013 16:10	DT
Blank Analysis for sample(s) 01 (WG217144-1)								
Chlorine, Total Residual	ND	mg/l	0.05	4	330.1		1012 21:55	DP
Blank Analysis for sample(s) 01 (WG217151-1)								
Chromium, Hexavalent	ND	mg/l	0.02	30	3500CR-D	1012 22:00	1012 22:00	JT
Blank Analysis for sample(s) 01 (WG217584-3)								
Total Metals				19	200.7			
Antimony, Total	ND	mg/l	0.005	3	200.9	1017 20:30	1018 16:50	PY
Arsenic, Total	ND	mg/l	0.005	19	200.7	1017 20:30	1018 13:59	RW
Cadmium, Total	ND	mg/l	0.0002	4	213.2	1017 20:30	1018 20:01	PY
Chromium, Total	ND	mg/l	0.01	19	200.7	1017 20:30	1018 13:59	RW
Copper, Total	ND	mg/l	0.01	19	200.7	1017 20:30	1018 13:59	RW
Iron, Total	ND	mg/l	0.05	19	200.7	1017 20:30	1018 13:59	RW
Lead, Total	ND	mg/l	0.001	3	200.9	1017 20:30	1019 00:08	PY
Nickel, Total	ND	mg/l	0.025	19	200.7	1017 20:30	1018 13:59	RW
Selenium, Total	ND	mg/l	0.005	19	200.7	1017 20:30	1018 13:59	RW
Silver, Total	ND	mg/l	0.0004	4	272.2	1017 20:30	1019 11:49	PY
Zinc, Total	ND	mg/l	0.05	19	200.7	1017 20:30	1018 13:59	RW

REFERENCES

3. Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA

Eight Walkup Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Date Rec'd in Lab: 10-12-05

ALPHA Job #: L0512140

Client Information

Client: TRC Corp.
Address: 116 John Street
Boott Mills South
Lowell, MA 01852
Phone: (978) 970-1
Fax: 978-453-1995
Email: dschafer@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: NSTAR 345KV Project
Project Location: Canton, MA
Project #: 45848-0000-00780
Project Manager: Colin Duncan
ALPHA Quote #:

Turn-Around Time

☐ Standard ☑ RUSH (only confirmed if pre-approved!)

Date Due: 10-19-05 Time:

Report Information - Data Deliverables

☑ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☑ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY - THESE QUESTIONS MUST BE ANSWERED

☐ Yes ☑ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are Drinking Water Samples Submitted?
☑ Yes ☐ No Have you met minimum field QC requirements?

Other Project Specific Requirements/Comments/Detection Limits:

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☑ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Metals	Total Suspended Solids	Hexavalent Chromium	Total Resid. Chlorine	TPH	Metals						Sample Specific Comments	TOTAL # BOTTLES
12140.1	SP222-A	10-11-05	12:50	I. GW	CPD	X											Filtered Preserve & hold for analysis	2
	SP222-A	10-11-05		"	CPD		X											1
	"	10-11-05		"	CPD			X										
	"	"		"	CPD				X									
	"	"		"	CPD					X								
	"	"		"	CPD						X							

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP ?

Container Type	P	P	P	P	A	P
Preservative	A	A				

Relinquished By:	Date/Time	Received By:	Date/Time
C. P. Duncan	10/12 1:15	John Branch	10/12 1:15
J. Branch	10/12 1450	[signature]	10-12-05 1450

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 07-01 std

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

April 30, 2004

Gary Jacob
Shaw Environmental, Inc.
88C Elm Street
Hopkinton, MA 01748

Re: Regional 345 kV System Reliability Project
Boston, Canton, Stoughton, MA
NHESP File: 04-14302

Dear Mr. Jacob,

Thank you for contacting the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife for information regarding state-protected rare species in the vicinity of the above referenced site. I have reviewed the site and would like to offer the following comments.

Our database indicates that the following protected rare species occur within or in the vicinity of the "Preferred" and "Noticed Alternative" Routes:

Noticed Alternative Route

Scientific name	Common Name	Taxonomic Group	State Status
Ambystoma opacum	Marbled Salamander	Amphibian	Threatened
Clemmys guttata	Spotted Turtle	Reptile	Special Concern
Terrapene carolina	Eastern Box Turtle	Reptile	Special Concern
Crangonyx aberrans	Mystic Valley Amphipod	Crustacean	Special Concern

Preferred Route

Scientific name	Common Name	Taxonomic Group	State Status
Clemmys guttata	Spotted Turtle	Reptile	Special Concern
Crangonyx aberrans	Mystic Valley Amphipod	Crustacean	Special Concern

These species are protected under the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.37 and 10.59). Fact sheets for most of these species can be found on our website at: www.state.ma.us/dfwele/dfw/nhesp/nhfact.htm.

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. Should your site plans change, or new rare species information become available, this evaluation may be reconsidered.

Based on a review of the information that was provided and the information that is currently contained in our database, it is our opinion that the "Noticed Alternative Route" has far greater ecological significance than the "Preferred Route". **The NHESP has determined that the "Preferred Route" is near actual habitat of state-protected wildlife, although it is our opinion that the proposed "Preferred Route" will not adversely affect rare wildlife habitat. We support the "Preferred Route" to avoid the "take" of state-protected species pursuant to the MA Endangered Species Act (G.L. c.131A).**

If you have any questions regarding this review, please call Patricia Huckery, Endangered Species Analyst, at ext. 151.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D
Assistant Director

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087

April 20, 2004

Reference:	Project	Location
	Electrical transmission lines	Boston, MA

Gary Jacob
Shaw Environmental, Inc.
88C Elm St.
Hopkinton, MA 01748-1656

Dear Mr. Jacob:

This responds to your recent correspondence requesting information on the presence of federally-listed and/or proposed endangered or threatened species in relation to the proposed activity(ies) referenced above.

Based on information currently available to us, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required.

This concludes our review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your coordination. Please contact us at 603-223-2541 if we can be of further assistance. **In the future, in order to expedite your reply, please direct any inquiries of this nature to this office at the above address.**

Sincerely yours,

Michael J. Amaral

Michael J. Amaral
Endangered Species Specialist
New England Field Office